

# Evaluation of Depression in Patients With Cancer In South of Iran (Zahedan)

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## Abstract

**Background:** The symptoms related to depression in patients with cancer are a major problem and could influence the treatment and survival of patients. This disorder is varied in different populations and in different studies.

**Methods:** We evaluated the prevalence of depression with Beck Depression Inventory (BDI) scale in 400 patients with cancer. This measurement was after the diagnosis of malignancy and before chemotherapy or radiotherapy.

**Results:** The mean age of patients was  $45 \pm 8.5$  years, and female to male ratio was 45/55. The prevalence of depression was 24.8 % and 28% in males and females. All patients with depression had mild to moderate depression. Prevalence of depression was significantly higher in younger cases ( $P < 0.0001$ ). According to the site of malignancy, prevalence of depression was significantly highest in patients with breast cancer, following metastatic of unknown origin and gastrointestinal cancer and the lowest prevalence was observed in patients with hematologic malignancy ( $p < 0.0001$ ). Also, we observed a significant higher prevalence of depression in single versus married patients ( $p < 0.0001$ ), in patients with higher education ( $p < 0.0001$ ) and patients who had knowledge about their disease in comparison with those who had no knowledge ( $p < 0.0001$ ).

**Conclusion:** The prevalence of depression and its severity in cancer patients in South east of Iran was lower than other studies and it seems that this situation may be related to high religious beliefs in this region, high prevalence of illiteracy and lack of knowledge about their underlying disease.

**Keywords:** Beck depression inventory; South East of Iran; Neoplasm

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## Introduction

The malignant disease is one of the most common diseases in human life [1]. Multiple constitutional symptoms such as loss of appetite, fatigue and insomnia could occur in cancer patients and in patients with malignancy. The prevalence of depressive symptoms in healthy people was 4.5 % - 9.3% in women and 2.3 % - 3.2 % in men [2]. The prevalence of depression in cancer patients varies and the range of this disorder is lower than 1% to over than 50 %, and the prevalence of major depression is 0 % - 38%, and the range of overall symptoms is 0 % - 58 % [3]. Many methods have been used to evaluate and assess depression in patients with cancer. One of the main tools to assess depression is Beck Depression Inventory (BDI) [4], followed by Hospital Anxiety and Depression Scale

(HADS) [5-7]. Depression risk factors in cancer patients were identified and analyzed as follows: pain, impairment functional status, progressive disease, and history of prior depression and decrease of social status [8, 9]. When the cancer and depression are combined, both factors could compromise the patients' survival [10].

## Materials and Methods

This study was performed in a prospective manner. Participants were the patients who had a tissue diagnosis of malignancy and referred to a medical oncologist for better evaluation and management. Four hundred patients participated in this study. This study was done in a two year period (2005-2007). All of the patients had a complete physical examination. The performance status of patients

**Table 1.** Full patients characteristic and prevalence of every status with malignancy

Parameter	Number (%)
<b>Age</b>	
20-39	39(10)
40-49	145(36.5)
50-59	145(36.5)
=>60	71(17)
<b>Sex</b>	
Male	220(55)
Female	180(45)
<b>Marital status</b>	
Single	120(30)
Married	280(70)
<b>Education</b>	
Illiterate	130(32)
Junior high school	90(22.5)
High school and college	170(45)
<b>Primary site of cancer</b>	
Esophageal cancer	118(29.5)
Gastric cancer	100(25)
Acute leukemia	98(24.5)
Breast cancer	42(10.5)
Colon and liver cancer	22(5.5)
Metastatic of unknown origin	20(5)
<b>Beck Depression Inventory</b>	
Score=<10 (normal)	294(73.5)
Score 11-17	106(26.5)
Score > 18	0(0)
<b>Understanding of disease</b>	
Know	250(62.5)
Don't know	150(37.5)

according to Eastern Cooperative Oncology Group Performance Status Scale (ECOG) was at least 0, 1, 2; other status that might have been mimicked and exaggerated psychiatric symptoms were excluded [11-13]. The physician filled the questionnaire sheets according to BDI. This depression parameter consisted of 21 items. According to these items, the scores of 0-10 indicated normal results and scores between 11-17 indicated mild to moderate depression symptoms, patients with a score over than 18 had overt depression and needed a medical intervention [14]. The physician who filled these questionnaire sheets was a general practitioner who received special training and rechecked them with a specialist. Data were analyzed by SPSS version 15 Software using chi-square and fisher's exact test for qualitative data. A p-value <0.05 was considered as significant.

## Results

The mean age of patients was  $45 \pm 8.5$  years with the range of 16-65 years. Fifty five percent of patients were male and 45% were female. The majority of patients were married (70%), 32 % were illiterate and others were in junior high school, high school and college. Considering the site of malignancy, patients were distributed in 6 groups as follows: those with esophageal cancer (29.5%), gastric cancer (25%), acute leukemia (24.5%), breast cancer (10.5%), colon and liver cancer (5.5%) and metastatic of unknown origin (5%). All of our patients with depression had mild to moderate score (score 11-17) and we did not observed any patients with high score depression (score  $\geq 18$ ).

Overall, the prevalence of depression in our patients was 26.5%, which was 24.8% and 28% in male and female patients respectively; 62.5% of patients had knowledge about their underlying disease (Table 1).

**Table 2.** Prevalence of depression in patients with different types of cancer

Type of cancer	With depression		Without depression		Total	
	n	%	n	%	n	%
Gastric cancer	22	22	78	78	100	100
Esophageal cancer	22	18.6	96	81.4	118	100
Acute leukemia	17	17.3	81	82.7	98	
Breast cancer	32	76.2	10	23.8	42	100
Colon and Liver cancer	8	36.4	14	63.6	22	100
Metastatic of unknown origin	5	25	15	75	20	100
Total	106	26.5	294	73.5	400	100
$\chi^2=63.3$ <span style="margin-left: 150px;"><math>df=5</math></span> <span style="float: right;"><math>p\text{-value}&lt;0.0001</math></span>						

**Table 3.** Prevalence of depression considering different levels of education in patients with cancer

Level of education	With depression		Without depression		Total	
	n	%	n	%	n	%
Illiterate	10	7.5	124	92.5	134	100
Junior high school	20	20.8	76	79.2	96	100
High school college	76	44.7	94	55.3	170	100
Total	106	26.5	294	73.5	400	100
$\chi^2=55.4$ <span style="margin-left: 150px;"><math>df=2</math></span> <span style="float: right;"><math>p\text{-value}&lt;0.0001</math></span>						

Patients were divided in four groups by age (20-39, 40-49, 50-59 and 60-69 yrs). Prevalence of depression was significantly higher in 20-39 (51.5%) year old patients and 40-49 year olds (31%) ( $P < 0.0001$ ).

There was no significant relation between sex and depression. Considering marital status, prevalence of depression was higher in single patients than the married ( $P < 0.0001$ ).

There was a significant relation between cancer type and prevalence of depression ( $P < 0.0001$ ), as we found the highest prevalence in patients with breast cancer (76.2%) following colon and liver cancer (36.4%) and metastatic of unknown origin (25%). The lowest prevalence was in acute leukemia (17.3%), following esophageal cancer (18.6%) and gastric cancer (22%) (Table 2). Prevalence of

depression was significantly higher in patients with higher education ( $P$  value  $< 0.0001$ ) (Table 3).

Patients who had knowledge about their disease had significantly higher prevalence of depression (32.8%) than patients who did not know they had cancer (16%) ( $P < 0.0001$ ).

## Discussion

Some symptoms of cancer are similar to depression symptoms and this finding is a major problem for diagnosis of depression in cancer patients and need to be considered very carefully for early detection.

In comparison with other studies, the prevalence of depression in our study was lower. For instance, in one study in 2004 the prevalence of depression among patients was as follows: 10% of patients had

severe depression, 32% moderate depression and 58% mild depression [15]. In another study, the prevalence of depression according to BDI was 40.9% [16]. One study reported the prevalence of depression as 43% in which 19% had major depression and 24% had mild to moderate depression [17]. Another study revealed the overall depression of 46% in which 20% of the patients had severe and clinical depression [18]. However, in our study, the overall prevalence of depression according to BDI was 26.5% and all of them had mild to moderate scores (11-17), and we did not observe any patients with severe depression. Perhaps the reason behind our finding may be that Iranians believe that all events in life is the will of God and that they should entirely accept and give in to these events (We did not find any published paper on this life style).

In another study, no relation was found between depression and age in cancer patients [19]; however, in our study, we had higher prevalence of depression in patients with age range of 20-50.

The prevalence of depression in hematologic malignancy was lower than solid malignancy and this finding was similar to other reports [20, 21].

In our study, 37.5% of the patients did not know they had cancer and this finding was similar to other reports in Middle East [22, 23].

In our study, the prevalence of depression in patients who they did not know had cancer was lower than patients who knew their underlying disease. This conclusion was similar to other studies [24].

The evaluation of marital status in patients with cancer and prevalence of depression in these patients revealed that depression in married patients was lower than single patients and this finding was different from results of a study that was done in capital of Iran [24].

The other finding in our study was the relation between level of education and prevalence of depression. The prevalence of depression in illiterate patients was significantly lower than patients with high school and college education. This finding was different from findings of other studies [24, 25].

When we compared the sex and prevalence of depression, we did not observe significant differences in the two groups. This finding was similar to another study [26].

## Conclusion

In South of Iran, the prevalence of depression in cancer patients was 26.5% and all of them had mild to moderate score according to BDI. The prevalence

was different in some subjects such as: high religious beliefs, level of education, marital status, knowledge of primary disease, age, type of malignancy. These findings revealed that the prevalence and severity and risk factors of depression in cancer patients are different in every population and in every part of a country.

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## Conflict of Interest

The authors have no conflict of interest in this article.

## Authors' Contribution

Mohammad Ali Mashhadi designed the study, analyzed and wrote the manuscript. Mansoor Shakiba helped in writing and checking the protocol and the manuscript.

Zahra Zakeri designed the study.

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